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ABSTRACT

Research developed and evaluated an individualized reading program for 21 third graders with reading problems. It sought to improve their reading ability so they could read and understand new vocabulary words with 80% accuracy, read with increased expression and fluency, comprehend new content and, by transfer, to produce improvement in their language arts and math abilities. One hundred and sixty-five lessons were developed, running from the primer to third-grade levels. The students listened to tapes and watched filmstrips which were prepared by teachers and which introduced new vocabulary. Next they heard a story read on tape, following along in their text. Then, new words were reviewed, followed by worksheet activities and a supplementary story on tape. Pupils then read the stories they previously heard onto audio tapes, which were then evaluated by teachers. Final evaluation indicated the objectives were achieved. Post-testing with the Metropolitan Achievement Test and the Lorge-Thorndike I.Q. Test showed an average gain in I.Q. scores of 17.43 points and the following average gains in achievement (expressed in years of gain): Word Knowledge 1.3, Word Discrimination 1.2, Reading Comprehension 1.9, Spelling 1.7, Language 2.9, Arithmetic Computation 1.9, and Arithmetic Problem Solving 1.5. (Author/PB)

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Final Report

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Project No. 2-J-013

Contract No. OEC-X-72-0012 (057)

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An Individualized Audio-Visual Instructional Program for Primary Grade Students with Reading Problems

June 30, 1973

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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ABSTRACT

The purpose of this research project was to develop and evaluate an individualized reading program for the primary child who was a year or more behind in reading. Twenty-one third-grade children participated.

The program includes 165 lessons, starting with primer level and continuing through third grade. New words for each lesson are introduced by a teacher-made filmstrip and cassette tape. The taped textbook story is next, followed by a review of the new words. Vocabulary reinforcement and new concepts are introduced through a worksheet activity with help on the tape. Students complete a post test activity without the tape and then read the story into a tape recorder. This is evaluated later by the teacher.

Teacher-made, high-interest books supplement each lesson, reviewing the new words. These are also on tape with a post test to check comprehension.

The children were tested with the Metropolitan Achievement Test and Lorge-Thorndike I.Q. Test in September, 1972, and again in May, 1973, after completing the reading program. Average gains: Word Knowlege 1.338, Word Discrimination 1.229, Reading Comprehension 1.881, Spelling 1.747, Language 2.857, Arithmetic Computation 1.938, Arithmetic Problem Solving 1.505.

Consistant and marked shifts in I.Q. Scores were noted.

FINAL REPORT

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education

National Center for Educational Research and Development

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INTRODUCTION

For six years, the project director has taught a Title I, self-contained third-grade classroom. The students were a year or more behind in reading and related subjects. Many also had social and emotional problems. Tapes were used with these children, but only in a group situation.

Problem: These children have mild to severe reading problems. Some have been retained in previous grades. When children have reached third grade and still have reading problems, they may also have acquired a distaste for school. These children are often reluctant to read on their own initiative, even if they choose their own reading matter. I have found children "mouthing" words and merely turning pages to make me think they are really reading. These children often lack communication skills and their speaking vocabulary is limited. In order to change these students' attitudes toward learning, they need to achieve and feel success.

Related research: E. H. Eggers, International Reading Association, May, 1970, and L. M. Sullivan, International Reading Association, August, 1970, both have written articles on uses of films and filmstrips in the classroom to "turn students on." Sullivan suggests using films to teach skills and supplement classroom activities.

R. E. Shore, International Reading Association, May, 1970, studied the effects of using a programmed approach vs. a conventional approach using audio-reinvorcement. The latter was found to be more effective.

Population: Twenty-one children were selected for this research project because they had learning problems. The second-grade teachers and the principal of the school made the selections. Five were Spanish-American and sixteen were Caucasian. The school is in the middle of a farming community. Some parents are farm workers while others are employed in nearby cities. No parent objected to his child being involved in the research project.

Objectives: With the method of instruction proposed, the child would be expected to achieve the following objectives in relation to his abilities.

1. After presentation of new vocabulary words from primer through third-grade level, students will read words with 80% accuracy.

2. Children will understand the meaning of the new vocabulary words as presented from primer through third-grade level with 80% accuracy.

3. After children have listened to taped lessons, they will be able to read with increased expression and fluency, using the lesson as a model.

4. After children have listened to taped lessons, they will comprehend content of reading matter presented with 80% accuracy.

5. After children have acquired reading skills through the proposed reading program, they will be able to transfer this reading achievement ability to areas of language arts and mathematics.

This program makes extensive use of teacher-made filmstrips and tapes in an effort to help the child relate to material presented and motivate him to read with comprehension.

METHODS AND PROCEDURES

An individualized reading program involving teacher-made audio-visual materials was developed for the "third-grade" child who was a year or more behind in reading.

Development of program: Twenty-one children were selected to participate in the reading research project. They were pre-tested at the beginning of the school year, September, 1972, with an individual reading inventory test (see Appendix 1), Metropolitan Achievement Test, and Lorge-Thorndike I.Q. Test.

The vocabulary for the inventory test came from the first and second grade Harper & Row Textbooks, and Scott, Foresman for third grade. Words on the list were uncovered at the rate of one every 5 seconds until the child fell below 80% correct. This placed him at his level in the reading program.

The Metropolitan Achievement Test was given again at the end of the school year, May, 1973, to evaluate each child's progress in reading, language arts, and mathematics.

The Lorge-Thorndike I.Q. Test was given again in May, 1973, to determine if there was any change in I.Q. scores as a result of the reading program.

The reading program developed and evaluated for this project consists of 165 lessons, beginning at a primer level and continuing through third grade. Materials are number and color-coded so the child can obtain his own lessons and when finished, return them to the appropriate place. (See Appendix 2)

Each lesson has a teacher-made filmstrip and cassette tape which introduces the new words. These filmstrips utilize the child's environment to make meanings relevant.

Also used is a textbook (Harper & Row for first and second, and Scott Foresman for third grade) because of the consistency of vocabulary build-up. Teacher-made worksheets and post tests introduce a new concept which is repeated three times in different ways.

Teacher-written, high-interest supplementary materials which include the new words, accompany each lesson. (See Appendix 3)

Ten listening carrels (See appendix 8), each with a tape player, earphones, and filmstrip projector, enable the student to work on his lessons with distractions kept to a minimum and concentration level high.

Five listening carrels, each with a tape recorder, are used by the students to record their stories.

At the beginning of the school year, a meeting was held with the children's parents to inform them of the reading program. Throughout the year, several parents spent time helping in the classroom.

Instructional method: New vocabulary for each lesson is introduced by a teacher-made filmstrip and cassette tape. The child views the word, sees and hears the word used in a sentence, and sees its meaning in picture form with explanations from the tape. Word-attack skills are given at appropriate places.

The child listens to the textbook story next, and follows along with his eyes. After the textbook story, the new words are reviewed -- he sees the new word, then reads a sentence containing the new word. Any necessary explanations are given on the tape. Open-ended questions are used to stimulate thinking. (See appendix 4)

A worksheet activity follows with help from the tape. A new concept is introduced at this time which is repeated on the post test for the textbook story and the post test for the supplementary story. In this way, the child makes use of the concept three times which helps his retention. (See Appendixes 5 and 6)

High-interest, teacher-written supplementary stories which use the new words, accompany each lesson. These are stories about our school, community, state, and of things that are of interest to the children in our community -- stories they can relate to. After the child has finished the textbook lesson, he turns the tape over and listens to the supplementary story and completes a post test on it. (See Appendix 7) The student operates the equipment and can rewind part or all of the tape to listen again.

When a student has finished his lesson, he reads the stories he has just heard into a tape recorder. This tape is evaluated later to determine if the child is able to go on to the next lesson. It was found that the student was more likely to apply his listening and learning skills during the introduction of the vocabulary and story when he knew he was to read it later.

The teacher kept a progress record (See Appendix 9) on each child so that post test scores and tape recording evaluations could be recorded. In this way, the teacher knew how each child was progressing at any time.

As a section of the book was completed, the child was given a vocabulary test. If he were 80% successful, he moved on to the next section. If not, he would repeat part or all of the section. Most children were more than 80% correct. Only two children throughout the year had to repeat part of a book.

Daily conferences were held with each child. Story content, student's reaction to lesson, and worksheet activities were among things discussed.

RESULTS

At the beginning of the school year, September, 1972, 21 third-grade children who were selected for the research project, were given the Metropolitan Achievement Test and the Lorge-Thorndike I.Q. Test. These children were given the same tests at the end of the school year, May, 1973. See Appendixes 10, 11, and 12 for the results of these tests.

Students with the higher I.Q. scores made the most gain in achievement scores. The average gains are: Word Knowledge 1.338, Word Discrimination 1.229, Reading Comprehension 1.881, Spelling 1.747, Language 2.857, Arithmetic Computation 1.938, Arithmetic Problem Solving 1.505.

The average increasein I.Q. scores is: Verbal 18.71, Non Verbal 15.71, Average 17.43.

The reading program changed the performance of the student in other areas of the curriculum as well as reading. His I.Q. score change may have been a result of his increased ability to read and take tests.

The 80% criteria in the objectives was not precise, but was used as a guide for teacher judgment of child's ability to understand the material.

Evaluation of objectives:

Objective No. 1: A vocabulary test was given at the end of each section in the textbook. It was found that only two children could not meet the 80% standard and they repeated several sections of the textbook. These were children No. 7 and 17. (See Appendix 11 and 12 for Achievement and I.Q. scores)

Objective No. 2: The teacher considered it more beneficial to the child to have a daily conference than a weekly conference. The material was fresh in the child's mind and he usually felt like sharing it with someone. The post tests were discussed and it was usually teacher judgment rather than an arbitrary 80% correct which determined if the child understood the material and could go on to the next lesson.

Objective No. 3: Throughout the year, each child was encouraged to read with expression and fluency, to observe punctuation, pronounce words correctly, and to read smoothly by phrases. Each child made a recording of his reading at the first of the school year which was saved and compared with a recording at the end of the year. Students could hear how much they improved during the 9 months.

Objective No. 4: A post test (80% correct) given after each lesson helped to determine comprehension of material. Small group and whole group discussions about the lessons were held throughout the year. Often children who are considered "slow learners" are reluctant to participate in discussions, but these children had retained sufficient information that they did not hesitate to contribute to the discussions.

Objective No. 5: The Metropolitan Achievement Test was given at the beginning of the school year, September, 1972, and again in May, 1973. See Appendixes 11 and 12 for progress made in reading, language arts and mathematics.

The reading program accomplished what it was expected to do. The materials were designed to fit the child's needs. It was completely individualized so that if a child were absent, he did not miss a lesson. If it were necessary for a child to review after a long absence, this was possible, too. Students not only read the material presented to them, but read library books as outside reading. They remained enthusiastic participants throughout the school year. Often times the listening carrels were filled with students doing their reading lessons before school started in the morning. They were allowed to complete as many lessons as they had time for. Parents were pleased with their child's achievements.

CONCLUSIONS

At the start of third grade in September, 1972, these 21 children were not up to levels expected of them. By the following May, the average score advanced by more than a year in every subject area and almost two years in some areas.

It should be noted that there is an error possibility in spelling and language. The pretest contained 5 zeros in spelling and 10 zeros in the language section. (The children did not get any right answers in these sections.) Zero scores are difficult to average so the pretest average probably lacks precision.

Children who are a year or more behind in reading usually lack communication skills and their speaking vocabulary is limited. Using the individualized reading program described in this report, the students tested have made more progress during the 1972-3 school year than any group of Title I students previously taught by the project director. There was also a marked increase in the number of library books read by each student during the year. Parents of these children have expressed satisfaction in their child's progress. Four parents indicated improvement in their child's speech when there has been a previous speech problem. This may have been due to the use of the earphones which the students could regulate themselves. The majority of children have been assigned to a regular fourth-grade classroom for the 1973-4 school year.

This method has made a significant change in the reluctant learner's ability to read and to apply what he has learned to other areas, and changed a possible negative attitude toward school to a positive one. The cost and time involved to initiate this program was well worthwhile.

Through the use of tapes, filmstrips, high-interest supplementary books, listening carrels and earphones, it was possible to develop a completely individualized reading program that fits the child's needs instead of fitting the child to the reading program.

Although the reading program was developed for use at the primary level, it should be of benefit to intermediate and upper grade youth if the program were designed for their needs.

The program for this research was set up in a self-contained, third-grade classroom, but such equipment and reading materials could also be located in a special reading area where all teachers in a school could use it.

Appendix - 1

READING INVENTORY TEST (Around the Corner) [1]

p. 4 - 48	game	hop
just	different	squirrel
shadow	T-shirt	climb
monkey	earrings	tree
puppy	p. 49 - 80	sun
him	night	duck
hair	all	swim
best	how	grass
sweater	bed	ran
ball	that	by
girl	fish	was
surprise	catch	enough
eat	let	lamb
oh	why	long
snake	be	legs
of	hamburger	am
white	ice cream	calf
stay	pigeon	tail
rabbit	David	off
bad	p. 81 - 110	colt
dime	pond	new
it	meadow	run
nickel	bear	faster
Mr.	fun	someday

Appendix 2
COLOR CODES

Red - First Grade 1_1

Green - First Grade 1_2

Orange - Second Grade 2_1

Blue - Second Grade 2_2

Yellow - Third Grade 3_1

Brown - Third Grade 3_2

Appendix 3

Red S 11-4 A NEW PAIR OF SOCKS

Dan was not yet three years old, but he could dress himself. Sometimes he would get his shirts on backwards or his stockings wrong-side out. This morning he found an old pair of socks and put them on. His feet felt funny when he walked.

Dan sat down in the middle of the kitchen and looked at his feet. "Look, Mother," he said. "My socks have big holes in them and I can see my toes."

"They sure have," answered Mother. "But I have a new pair of white socks that you can wear today."

Mother got the stockings and Dan put them on his feet. "I like them," he said.

Dan liked his white socks so well that he didn't want to wear his shoes. Later when Dan went outside, he was wearing his socks without his shoes. "I want everyone to see my new socks," he thought.

The ground was wet. Dan found a mud puddle and walked through it. He looked at his socks. They were not white any more. "If I walk through the grass, maybe the mud will come off," he told himself.

Dan found some tall grass and walked through it. Some of the mud came off, but he found something else on his new socks. Little seeds stuck to his socks. "If I jump, maybe they will fall off," he said.

Dan jumped and jumped, but the seeds would not fall off. "There are too many seeds," he thought.

Just then Dan saw his pet rabbit run across the yard. His puppy was chasing it. The rabbit did not like to stay in his pen.

"The rabbit is out of his pen," he called to his mother.

Mother came running. "The puppy will hurt the rabbit. We must catch it."

"Bad puppy," called Dan. "Come back. Don't chase the rabbit."

Mother caught the rabbit as it ran under a tree. Then she saw Dan's new white socks.

"Look at your new socks," she said. "They are muddy and full of seeds. You'll have to take them off and pull each seed off. Then I'll wash them so they will be white again."

"It wasn't much fun pulling all the seeds off.

"I guess I had better wear my shoes next time," he said to his puppy who had fallen asleep at his feet.

Appendix 4

Red 11-4 New Vocabulary for WHITE SOCKS, P. 23 - 28

white socks	The boy is wearing white socks.
stockings	Another name for socks is stockings.
jump	Mark wanted his dog to jump.
stay	The puppy wanted to stay where he was.
come back	"Please, Socks, come back to me," called Mark.
morning	What time did you get up this morning?
rabbit	Where did the rabbit hide?
too many	There were too many cats trying to eat.
two	Two boys went to school.
to	Dan went to town.
bad puppy	The bad puppy will chase the cats away.

Appendix 5

Red 11-4 Worksheet for WHITE SOCKS P. 23 - 28

1. Why did Mark give Socks a bath?

   Socks liked to have a bath.
   Socks had dirty feet.
   Socks had a bath every day.

2. Socks was a _____ puppy.

   sad glad bad

3. Did Socks like Mark this morning? yes no

4. Socks saw a _____.

   duck horse rabbit

5. Why did Socks need another bath?

   He was clean.
   He chased the rabbit through the mud.
   He ran to Ann and Janet.

6. What happened first in the story?

   Socks ran to Janet and Ann.
   Socks ran after a rabbit.
   Socks got a bath.

7. Draw a picture of Mark giving his puppy a bath.

Appendix 6

Red 11-4 Post test for WHITE SOCKS P. 23 - 28

1. What happened last in the story?

Mark and Janet gave Socks a bath.
Socks got muddy.
Mother called Mark.

2. Draw something white in the square.

3. Did Socks stay home when Mark told him to? yes no

4. How do you think Socks felt when he got another bath?

happy sad afraid

5. Socks ran after a _____.

cat cow rabbit

6. Draw a picture of Socks and the rabbit.

Appendix 7

Red S 11-4 Post test for A NEW PAIR OF SOCKS

1. Why did Dan need a new pair of socks?

   He didn't like the color of his old ones.
   His old socks were too small.
   His socks had holes in them.

2. Why didn't Dan wear his shoes outside?

   He wanted everyone to see his new socks.
   He didn't like his shoes.
   He didn't know how to put his shoes on.

3. Did Dan like his new socks? yes no

4. Why didn't Dan go to school?

   His mother wouldn't let him go.
   He wasn't old enough.
   The school was too far away.

5. What happened last in the story?

   Dan walked through a mud puddle.
   Mother gave Dan a new pair of socks.
   Dan pulled seeds off his socks.

6. Dan's old socks had big _____ in them.

   poles holes lumps

7. Why do you think the ground was wet?

   The sun was shining.
   It had rained early in the morning.
   The wind was blowing.

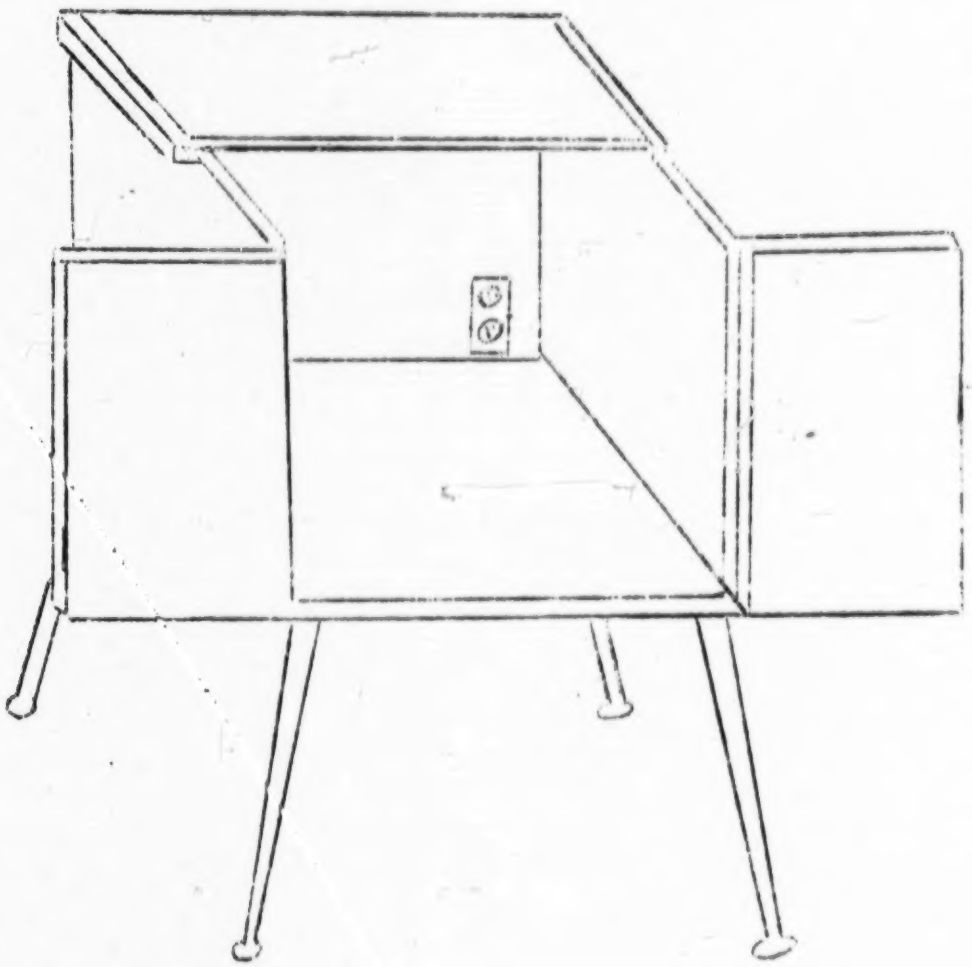
8. Why did Dan say his dog was a bad puppy?

   He chased the rabbit.
   He had muddy feet.
   He ran away.

9. Draw a picture of Dan and his new white socks.

Appendix 8

Individual Listening Carrel



Appendix 9

PROGRESS RECORD

Name_____

Date	No. of Story	Oral Reading	Work-Sheet	Supp. materials Oral Reading	Worksheet

Appendix 10

Metropolitan Achievement Test Scores

Child No.		Word Know.	Word Disc.	Reading Comp.	Spelling	Language	Arith Comp.	Arith Prob. solving	Lorge Thorndike v/non v	Average
1	Sept	1.7	1.9	1.6	0	2.2	1.3	0	65/79	72
	May	3.6	3.1	3.8	3.0	3.4	2.7	2.4	93/89	91
2	Sept	2.1	2.3	1.8	2.4	0	2.1	2.1	78/92	85
	May	3.7	3.7	4.2	4.0	4.1	4.6	4.1	103/114	109
3	Sept	2.1	2.2	1.7	3.1	2.1	2.5	2.7	76/99	88
	May	3.1	3.5	4.3	4.6	4.2	4.2	3.6	97/112	105
4	Sept	1.9	2.1	2.5	1.8	1.4	2.0	2.3	76/86	81
	May	2.3	2.8	3.2	2.7	2.4	5.0	3.6	85/93	89
5	Sept	1.8	2.1	1.9	2.9	1.4	2.6	2.1	76/101	89
	May	3.8	3.5	3.7	4.0	4.8	4.2	4.4	101/128	115
6	Sept	1.6	1.6	1.3	1.8	0	1.5	2.1	66/79	73
	May	2.9	3.1	3.6	4.0	3.8	3.7	2.8	85/100	93
7	Sept	1.8	2.5	1.7	2.0	0	0	2.3	67/75	71
	May	3.1	2.8	3.1	3.3	3.9	2.8	2.3	82/84	83
8	Sept	2.4	2.1	1.8	2.4	1.9	2.1	2.8	92/92	92
	May	3.8	3.9	3.3	4.8	4.7	4.1	3.8	103/109	106
9	Sept	1.3	1.4	1.0	0	0	2.1	2.3	71/98	85
	May	3.4	3.3	3.2	3.0	4.1	4.2	3.4	106/124	115
10	Sept	2.0	2.6	1.9	2.2	1.2	2.6	2.7	89/91	90
	May	4.1	4.0	3.9	3.6	3.7	4.1	4.9	102/112	107
11	Sept	2.3	2.8	1.6	3.3	2.0	1.7	2.6	77/87	82
	May	3.1	3.7	3.5	4.8	4.4	4.0	3.1	95/95	95
12	Sept	1.8	1.6	1.8	2.3	0	2.3	2.7	63/79	71
	May	3.4	3.5	3.2	3.8	3.3	3.6	3.1	88/92	90
13	Sept	1.8	1.8	1.0	2.0	1.1	2.0	0	63/86	75
	May	2.4	2.6	3.2	2.9	2.0	3.9	2.9	71/101	86

Child No.		Word Know.	Word Disc.	Reading Comp.	Spelling	Language	Arith Comp.	Arith Problem Solving	Lorge Thorndike v/non v	Average
14	Sept	1.0	1.0	1.6	1.8	0	2.2	0	55/84	70
	May	2.4	1.6	2.5	2.7	2.1	3.7	3.1	73/92	83
15	Sept	1.7	1.9	1.3	2.9	1.9	2.2	2.3	81/108	95
	May	3.5	3.5	4.0	4.2	3.8	4.9	5.2	107/125	116
16	Sept	2.1	1.9	1.3	3.1	0	1.9	2.8	85/85	85
	May	3.6	3.9	4.2	4.8	4.8	4.6	4.6	102/99	101
17	Sept	1.0	1.0	1.0	0	0	1.3	0	66/74	70
	May	2.7	2.3	3.1	2.4	2.6	2.8	2.3	79/88	84
18	Sept	1.6	1.0	1.0	2.3	0	2.3	2.1	71/86	79
	May	2.9	3.5	3.7	4.0	4.6	4.0	3.4	94/113	104
19	Sept	2.1	1.9	1.0	0	1.7	2.5	2.4	68/75	72
	May	2.5	2.9	3.1	2.2	3.8	3.9	2.6	80/91	86
20	Sept	1.7	2.2	2.5	0	0	2.5	2.3	74/95	85
	May	2.2	2.6	2.8	2.4	2.1	4.7	3.8	82/105	94
21	Sept	2.3	3.2	3.3	2.4	1.2	3.6	3.4	87/98	93
	May	3.7	3.1	4.5	4.2	5.5	4.3	4.2	111/113	112

Appendix 11

Metropolitan Achievement Tests
(Average Scores)

(n=21)

Word Knowledge	Pre	1.814	Sept 1972
	Post	3.152	May 1973
	Gain	1.338	
Word Discrimination	Pre	1.957	Sept 1972
	Post	3.186	May 1973
	Gain	1.229	
Reading Comprehension	Pre	1.648	Sept 1972
	Post	3.529	May 1973
	Gain	1.881	
Spelling	Pre	1.843	Sept 1972
	Post	3.590	May 1973
	Gain	1.747	
Language	Pre	.862	Sept 1972
	Post	3.719	May 1973
	Gain	2.857	
Arithmetic Computation	Pre	2.062	Sept 1972
	Post	4.000	May 1973
	Gain	1.938	
Arithmetic Problem Solving	Pre	2.000	Sept 1972
	Post	3.505	May 1973
	Gain	1.505	

Appendix 12

Lorge-Thorndike Group I.Q. Test
(Average Scores)

Verbal	Pre	73.62	Sept 1972
	Post	92.33	May 1973
	Diff.	18.71	
Non Verbal	Pre	88.05	Sept 1972
	Post	103.76	May 1973
	Diff.	15.71	
Average	Pre	80.86	Sept 1972
	Post	98.29	May 1973
	Diff.	17.43	